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Recent Experience with Commercial Bank Debt Reduction

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An analysis of the five recent debt-reduction agreements shows that the menu approach achieved debt reduction at substantially lower costs than a comparable market-based operation. But indirect benefits, or efficiency gains associated with debt reduction, are necessary to make the operation benefit the debtor.

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This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the costs and benefits to countries of debt and debt service reduction arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (October 1992, 48 pages).

Claessens, Diwan, and Fernandez-Arias review the case for market-based debt reduction and concerted debt reduction. They explain the new menu-based approach to debt reduction and discuss why it may be preferred to market-based and concerted debt reduction.

In a review of the five recent debt-reduction agreements, they find that the menu approach indeed achieved debt reduction at substantially lower costs than a comparable market-based

operation. By one measure, the five countries may have saved more than \$8 billion.

Even a menu-based approach to debt reduction, however, is unlikely to directly benefit the debtor financially. They find that the debtors suffered financial losses equal to a few percent of their GDPs. Indirect benefits, or efficiency gains associated with debt reduction, are necessary to make the operation benefit the debtor.

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IECDI, The World Bank

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Recent Experience with Commercial Debt Reduction

INTRODUCTION

Over the years, many proposals have been made to resolve the commercial debt problems of middle-income developing countries (see Carmichael (1989) for an overview). During a period of time, international policy makers considered market-based debt reduction an attractive means to solve the debt problem. Market-based debt reduction transactions involve the repurchase (or conversion into other claims) by the debtor of its commercial debt at a discount through an open-market operation. Market-based debt reduction transactions increased sharply after 1985, from about \$1 billion in face value of debt retired to over \$17 billion in 1988 (see the Quarterly Review, World Bank, various issues). The results were mixed, however, as debt burdens remained high and economic performance in many of the indebted countries remained poor.

Over this period, many proposals involving government intervention were made, often centered around an institution involved in buying up commercial debt at a discount and forgiving part of it. Most of these proposals involved a concerted approach to debt reduction, i.e., all creditors would have to sell their claims to the institution or be forced to participate in debt forgiveness in a uniform way. None of these concerted proposals were implemented to solve the commercial debt problems.

What did occur was official support for a menu-based approach. In 1989, officials of several creditor countries--former Finance Minister Miyazawa of Japan, President Mitterand of France, and Secretary Brady of the United States--proposed to promote official support for debt and debt reduction (DDSR). The Brady plan finally adopted in May of 1989 involves the IMF,

the World Bank, and the Japanese government providing between \$30-35 billion in funds to support DDSR operations agreed by debtor countries with their commercial creditors. Since the introduction of the Brady Plan, five countries (Mexico, Philippines, Costa Rica, Venezuela, and Uruguay) have received official support and reached agreements with their commercial creditors on DDSR packages reducing commercial debt obligations and/or converting debts into collateralized bonds and/or domestic assets. At the time of writing, the Philippines (second phase), Brazil, Argentina, Poland, and Ecuador, among others, are negotiating with their creditors agreements along similar lines.²

The two key features in these agreements are the participation of virtually all commercial banks³ and the use of a menu of different options, including both debt reduction and new money, from which banks have to choose. This differs from previous, market-based debt reduction transactions in that, like in a concerted operation, all banks need to agree to some form of restructuring for the agreement to be concluded. By contrast to a concerted approach, however, this menu-based approach allows banks to freely choose among the menu of options, and therefore does not impose the same treatment to all banks.

The main purpose of this paper is to evaluate the financial implications of these three approaches, namely market-based, concerted, and menu-based, from the point of view of the debtor and the creditors. After a background discussion on the development impact of DDSR operations and their benefits to all parties, conducted in section I, we focus on the evaluation of the three approaches. In section II, we discuss the analytical case for market-based debt

²Nigeria concluded an agreement in February 1992. About twenty countries were initially singled out as potential recipients of Brady treatment.

³A partial exception is the Philippines operation, where about one fourth of eligible commercial bank debt was not involved in the restructuring.

reduction and concerted debt reduction, explain how the new menu-based approach to debt reduction works, and discuss the reasons why it may dominate the other two methods of debt reduction. In section III, we review the five recent Brady deals and evaluate our theoretical analysis regarding the workings of the menu-based approach against actual practice. Finally, in section IV, we conclude by drawing lessons from these deals.

I. EFFICIENCY GAINS AND BENEFITS OF DDSR

The main motivation for DDSR is the creation of efficiency gains by unlocking the inefficient arrangement in which some indebted countries and commercial banks are trapped into. At the root of this inefficient arrangement is the lack of enforceability of sovereign contracts, which limits the countries' ability to credibly commit to future payments and, consequently, their ability to attract foreign financing beyond a relatively low ceiling. Once circumstances are such that this ceiling is surpassed, a debt crisis sets in and commercial banks retrench, lending only on a negotiated, involuntary basis. While in these circumstances both banks and countries have a common interest in efficient domestic investment helped by adequate external financing, whose returns they could share in a mutually advantageous way, the implementation of a cooperative arrangement between creditors and debtors would require commercial banks to limit their retrenchment facilitating the countries' investment effort. In practice, coordination failures among banks and the relative inability to credibly commit to cooperate in the future of all the parties involved have precluded the implementation of such cooperative arrangements. Instead, short-sighted debt rescheduling negotiations have taken place resulting in inefficient outcomes.

The inefficient arrangement that DDSR attempts to improve is characterized by disincentives to domestic investment and the lack of external financing, which result in low domestic investment. Efficiency gains from DDSR relate to more and better domestic investment as well as more efficient external financing, both in terms of volumes and risk-sharing features. DDSR can lead to a new structure of commercial bank debt whose face value is reduced and mostly converted into bonds, where permanent and relatively low ceilings on debt

service are established, and where some insurance is provided in the form of fixed nominal interest rates and recapture clauses.

Efficiency Gains of DDSR

DDSR operations are carried out in the expectation that these characteristics generate efficiency gains. These efficiency gains of DDSR can be classified in three (partially overlapping) categories: (i) those related to the cashflow implications of the DDSR agreement, the direct benefits; (ii) those related to changes in the debtor's economy following DDSR, the domestic indirect benefits; and (iii) those related to changes in the behavior of creditors following DDSR, the external indirect benefits.

(i) Cashflow implications of the DDSR agreement: direct benefits

The financing of the DDSR operation matters. To the extent that the debtor country is capital-rationed, investment is inefficiently low and cashflow relief can have a positive effect on domestic investment. However, DDSR tend operations expected to be front-loaded because the debtor country has no credible way to commit to future compensation in exchange for upfront debt reduction. The financing of this upfront liquidity need is thus important. When financing comes from domestic sources or from external grants and loans that the debtor would have received anyway, this liquidity leads to inefficient outcomes as investment is reduced.⁴ If external, additional financing is used, this inefficiency can be avoided.

⁴To the extent that part of this financing would have been used for investment purposes and that part of the associated future output would have been used for debt service to the same banks, the banks end up paying part of the DDSR bill. Fernandez-Arias (1992) presents financial savings under different debt-servicing scenarios and the possible implications on investment.

More generally, changes in cashflows affect liquidity and investment. In section III we show that DDSR operations are financially costly to countries and, therefore, cashflow savings are negative (in present value). This implies that cashflow savings are not a likely source of efficiency gains (see also Fernandez-Arias (1992)).

(ii) Changes in the debtor's economy: the domestic indirect benefits

Debt reduction can lead to indirect benefits in the debtor economy. These indirect benefits depend on the specifics of domestic economic policy, and, in general, are fuzzy and difficult to predict pre deal. A case by case analysis is in general required⁵. The mechanisms that can bring about those gains comprise the following:

- (a) Debtors repay (part of) their debts because a failure to do so would expose them to the various penalties creditors can impose. These penalties will be related to, among others, the country's access to goods and financial markets. For a highly indebted country, this implies that actual repayments will depend on the activity that is subject to the threat of penalties. This can lead to distortions. For example, penalties may be related to trade and an increase in trade will then be associated with larger debt repayments. This implies--at the margin--a disincentive to engage in trade reforms. More generally, the threat of penalties can lead to the expectation of a high future "tax" (Sachs, 1990 and Krugman, 1989) and distort incentives to engage in all kind of investments and reform efforts (that are often akin to investments). Depending on the severity of the

⁵ Fernandez-Arias (1992) discusses the ex-post evidence on some of these domestic indirect benefits.

penalties, debt reduction can lead to a reduction of these disincentives;

- (b) A second type of inefficiency is introduced by the increased uncertainty (about future fiscal and foreign exchange developments) associated with a debt overhang. In general, the negotiation and bargaining process is associated with uncertainty (sometimes as a result of posturing) about timing, extent and nature of debt servicing. In the face of this uncertainty, investors will often prefer to postpone their investments (and engage in capital flight). A DDSR agreement can lead to a reduction in uncertainty, which can then lead to increased private investment and a repatriation of flight capital;
- (c) A third type of inefficiency may be related to an asymmetry in information between debtors and creditors, where a "good" debtor is unable to convey to the creditors its true characteristics. To the extent that DDSR is advantageous only to a good debtor--when post deal the economy performs better than expected by the creditors and the repayments do not become a burden to the country--DDSR can be used by the debtor to signal its "true" creditworthiness to investors. Furthermore, a large DDSR deal that is supported by the IFIs (and accompanied by their conditionality) can in this respect also act as a signal and increase market confidence: the IFIs are presumably better informed about the debtor and, by providing some of their own money in the context of a DDSR deal, signal their confidence in the debtor; and
- (d) A fourth type of inefficiency is related to the internal transfer that the government has to achieve in order to collect the needed revenue to service public external

debt. If the internal transfer is achieved by raising taxes from some economic sector (e.g., trade, financial markets), these sectors will be less profitable, and less investment will occur. Often this will be accompanied by capital flight. If the inflation tax is used to raise the necessary government revenues, relative prices will likely be distorted and an inefficient allocation of resources can result. Reductions in public debt service can alleviate these distortions and lead to efficiency gains. Possibly more important than the cashflow savings in external debt, discussed in (i) above, is the reduction in domestic interest rates and the public debt premium as a result of uncertainty reduction and the other factors previously discussed.

- (e) Last, are domestic political factors. A DDSR deal may lead to an increased domestic acceptance of austerity as the burden of reforms is now perceived to be shared with external creditors. This may make the reform process more viable and ultimately lead to increased output and higher repayments to banks.

(iii) Effect of DDSR on the creditors: the external indirect benefits

To discuss the effects on the creditors, it is useful to recall the definition of a debt overhang. A debt overhang is defined as a situation where the existing debt is unlikely to be serviced in full, leading to a secondary market discount and a cut-off of voluntary credits. This is consistent with profitable investment opportunities in the country. In principle, the existing creditor group as a whole could gain by providing the debtor with some liquidity to take advantage of existing investment opportunities and in that way increase the country's capacity

to repay. Small creditors, however, will try to escape the burden of this concerted lending approach by free-riding on the efforts of the larger creditors. This of course reduces the desire of larger creditors to provide liquidity.

DDSR can now create efficiency gains if it increases the scope for cooperation among creditors by allowing smaller creditors (potential free-riders) to exit. DDSR, if it is deep enough, can also create headroom for new types of creditors. When these new creditors (e.g., international financial institutions (IFIs) and foreign direct investors (FDI)) provide additional value (e.g., through their conditionality and monitoring of investments) or technology transfers, which allows them to deal more effectively than commercial banks with the particular problems of the highly indebted countries, additional efficiency gains may be realized (Diwan and Rodrik, 1992).

The exact nature of these inefficiencies--and the gains from removing these inefficiencies through a DDSR operation--will depend most on three factors: the type of penalties the country is exposed to; the instruments used to raise government revenues; and the relationship between the country and its creditors. These factors will in general be hard to quantify and a case-by-case analysis will be required. The only general rule that may be developed is that DDSR, by removing some disincentives, can increase the likelihood of success of an existing reform program (or make it more likely that a reform program becomes acceptable for the country), and in that way lead to efficiency gains and increased output. DDSR is thus more likely a profitable possibility when a good program is in place, but unlikely otherwise.

The DDSR experiences are too recent to be fully evaluated (Fernandez-Arias (1992) presents some preliminary evidence). Nevertheless, they suggest that the deals have led to very

favorable results in Mexico and in Venezuela, and moderately favorable ones in the other countries. In Mexico the debt deal has been associated with a sharp decline in domestic interest rates⁶, and both in Mexico and Venezuela the stock markets has risen, and a renewed access to the world financial markets has occurred.⁷ For the other countries, the impact has been less pronounced. In case of Costa Rica and the Philippines, policy slippages and the impact of adverse internal and external shocks (Gulf crisis, earthquake, coup, lower export prices, etc.) initially diluted or dissipated the possible positive effects of the agreements. In the case of Uruguay, the agreement is too recent to be able to fully evaluate it. In all cases, the policy framework has proven to be the most important factor.

The Net Benefit of DDSR

To the extent that the operation entails efficiency gains, the debtor country could benefit from it. Note that the country's benefit is a welfare concept, and therefore the benefit is only the additional value of the investment return in excess of that of foregone current consumption. These benefits come at a cost to the country. In order to obtain the net benefit derived by the debtor country, the financial cost of the operation needs to be subtracted. This financial cost comprises the direct cost of debt reduction (e.g., the resources paid to banks in a buy-back operation) and the change in the expected present value of debt service payments on outstanding

⁶The domestic interest rates fell by about 20 percent when the Brady agreement was announced, and by a further 10 percent towards the end of 1990 (see van Wijnbergen (1991a and 1991b)).

⁷Domestic stock markets increased by 25 % percent in Mexico and 116 % percent in Venezuela. Foreign capital held abroad by domestic residents has flown back to both Mexico and Venezuela in considerable amounts. Private and public sector entities in these two countries have been able to access voluntarily the private capital markets in significant amounts (see further the World Debt Tables 1991/1992 and Fernandez-Arias (1992)). The secondary market prices for both Mexico and Venezuela (stripped of any enhancement values) have also increased considerably between the date of the agreement and mid-1991, by about 20 percentage points, reflecting further confidence.

debt claims.

As discussed in the next section, to a first approximation this financial cost to the country is the mirror image of the financial gains of external creditors. The financial gain of commercial banks is a direct result of the operation. The financial cost to the country may differ from commercial banks' financial gain, however, because other external creditors may also incur financial gains or losses as a result of DDSR operations. The picture that emerges is one where the efficiency gains created by the operation are shared by the debtor country, commercial banks, and, possibly, other external creditors. The country benefits from the portion of efficiency gains which are not diverted to external creditors in the form of financial gains.

II. FINANCIAL COST OF DEBT REDUCTION

In this section, we first analyze the cost of debt reduction and the possible reasons why debt may be valued differently by the debtor compared to its creditors. Second, we review why market-based debt reduction puts the debtor at a disadvantage relative to its creditors and conclude that the menu-based approach minimizes financial costs to the country when compared to both market-based and concerted approaches.

Valuation of country debt and financial costs

To analyze the cost of a dollar of face value of commercial debt for the debtor, we have to analyze why it repays in the first place. In the absence of an international bankruptcy court (or the usage of "gunboats"), the debtor will pay because in that way it avoids penalties being imposed. These penalties can be intertemporal (trade sanctions, withdrawal of trade credits, etc. see Bulow and Rogoff (1989a)) or intertemporal (exclusion of future access to capital markets, see Eaton and Gersovitz (1981)). To avoid these penalties from being imposed on it, which may generate little direct benefits to the creditors, the debtor and the creditors will try to reach an agreement involving some (partial) payment by the debtor. Since the bargaining power of the creditors will depend on the severity of the penalties they can impose, the agreement reached with creditors will likely imply that the debtor will pay in relation to the severity of the penalties the creditors can successfully impose upon the debtor (see Fernandez-Arias (1991)).

The secondary market price of a country's debt claims provides a useful starting point for gauging the debt servicing prospects of that country as perceived by its commercial creditors.

As in all relatively efficient asset markets, it is reasonable to presume that the market value of debt represents the consensus market estimate of the expected present value of all future payments received on account of outstanding debt claims. The market for debt has grown since 1985, and it has become fairly efficient and liquid, at least for the large debtor countries. Transaction volume in 1991 is estimated to have been around \$200 billion.

The present value for the debtor of its expected future debt service may be different from the market value of debt. Cashflow payments made by countries may not exactly coincide with the receipts that banks effectively receive in net terms in connection with those payments because of tax and regulatory reasons as well as the expectation of third parties bailing out banks. Banks--especially those in a weak financial position--may expect to receive from official institutions some side-payments, or if necessary, be bailed out by the official sector, if the country is unable to repay. Secondary market prices would then overstate the expected value of payments by the country as they include payments by third parties.⁸ While the situation will vary from country to country, it can generally be expected that these considerations will lead creditors to value debt relatively more. This of course makes DDSR operations that are beneficial to both the debtor and its creditors more difficult to achieve.

It should be noted that differences in valuation of a given stream of cash flows may arise from the different discount and risk aversion factors used by the debtor and the creditors. The typical indebted country is capital-poor, undiversified, and shut off from the world capital market for lack of creditworthiness. It is thus likely more impatient (have a higher discount

⁸ Certain aspects of banking regulations may exercise a depressing effect on prices. But on a net basis, it is hard to believe that due to banking regulations, the price can be lower than the present value of what the creditors are expected to receive from the debtor. If such a situation arose, non-banks would buy the debt from the banks. However, no such trend had been observed prior to the Brady plan.

rate) and more risk-averse than its creditors. Consequently, it may be not in its interest to prepay debt (which entails an efficiency loss resulting from a reduction of liquidity), even at a fair market-value from the creditors' point of view. It should be noted however, that financial costs refer to the expected present value of debt service payments discounted at the riskless market rate and are therefore not dependent on these differences.

It appears that, if anything, to assume that the country's expected future debt service is adequately reflected by market valuations is a conservative assumption regarding the estimation of the financial costs to the country. Making such assumption, the financial costs to the debtor country equal the financial gains to its external creditors. If only commercial banks are financially affected by the operation, we can ignore other creditors. To the extent that other creditors are subject to country risk, however, they are probably affected. Other private external creditors are likely gainers: they benefit from the rise in value of their claims as a result of debt reduction and improved country's prospects without increasing their exposure. In the case of official creditors, there is the countervailing factor that they generally increase their exposure by providing additional financing. If official claims are riskless, official creditors are not financially affected by definition. If official claims are subject to country risk, however, the financial impact is ambiguous. The total financial cost to the country would then amount to the total financial gains of ⁹external creditors, that is financial gains to commercial banks and other private creditors plus the financial gains (or minus the financial ⁰losses) of official creditors.

We will estimate in the next section the financial costs to the country as the net payment made in exchange for debt reduction minus the reduction in the market value of outstanding

⁹And other foreign investors if applicable.

debt. This reduction in value is determined not only by the amount of debt reduction achieved but also by the method of financing. For example, if new senior loans are used to finance DDSR, the value of commercial bank debt falls for a given amount of debt reduction (see Claessens, Diwan, Froot and Krugman, (1991) for more details). In the remainder of this section we will show that a menu-based approach to debt reduction minimizes this payment and, therefore, the financial cost of a given DDSR operation.

Minimizing financial cost: the case for menu-based debt reduction

It is useful to think that debt reduction, and DDSR more generally, affects two basic parameters: the size of the economic pie generated by the debtor country (the efficiency gains), and its sharing between the various stakeholders (the interest groups in the debtor country, the banks and the other creditors). For the debtor, benefits from DDSR crucially depend on a larger economic pie. The mechanisms used for DDSR will matter in determining the sharing of the gains. We will show that a pure market-based approach generally favors the creditors at the expense of the debtor. In a menu-based approach, the debtor can retain as much as possible the efficiency gains.

Market-based DDSR

When considering the costs and benefits of market-based DDSR, it is important to understand the effects that are intrinsic to the market-place. In all asset markets where sellers are atomistic, it is quite difficult for a buyer to internalize a general value increase associated with its purchase of an asset. In the context of country debt, this implies that there are two

reasons why market-based DDSR leads to an overpayment by the debtor.

- (a) Market-based DDSR occurs at the average price of debt. However, the financial benefit of DDSR to the country is only the marginal decrease in the value of debt--the marginal price. The marginal price will be lower than the average price since debt service in the bad states of nature is not strictly proportional to the quantity of debt outstanding (Bulow and Rogoff, 1989b and 1991).
- (b) The market price of debt rises following DDSR. With less debt around, the remaining debt is more likely serviced. In a rational market, an announced DDSR operation will not occur at the lower, pre deal price but at the higher, post deal price (Dooley, 1989).

The compounded effect of these two factors is that the market value of debt will be reduced by less than the expenditure the country makes. In fact, the difference between the pre deal and post deal price provides all banks--those that exit as well as those that remain--with a capital gain compared to their status-quo and implicitly the debtor makes transfers to the exiting as well as remaining banks.¹⁰

The case of Bolivia is illustrative of the direct losses that arise in market-based DDSR (see Bulow and Rogoff (1989b)). In 1986, Bolivia began negotiations with both outside donors and its creditors that ultimately led to an externally financed buyback in March 1988, completely financed by a donation. Bolivia owed its commercial banks \$670 million in debt and \$300 million in interest arrears. Debt was valued by the market at \$40.2 million on the eve of the buyback negotiations in September 1986 (i.e., 6 cents on the dollar). The 1988 buyback retired \$335 million of debt (with their arrears) at a price of 11 cents, implying an expense of \$36.9

¹⁰This does not imply that market-based DDSR necessarily hurts the debtor, but that indirect or efficiency gains arising from DDSR have to be large enough to compensate for the direct loss.

million which was funded by the external donation. After the transaction in March 1988, the remaining \$335 million of claims were valued at \$36.9 million. The operation thus reduced Bolivia's expected payments by only \$3.3 million ($40.2 - 36.9$), and creditors net gain was $\$36.9 - \$3.3 = \$33.6$ million. Clearly, creditors received most, but not all, of the donation. Assuming Bolivia would have received the grant anyhow, it would likely have been better off if it had used the grants for some other purpose.

Concerted versus Market-based deals

We have argued above that if debt is reduced by the debtor through a market-based operation, then the price that must be paid is the average price of claims after debt reduction because any lender can choose between selling or retaining claims, a reflection of the market-based character of the operation. Concerted agreements could conceivably be worked out to overcome this coordination problem. Ideally, each creditor bank would sell a specific share of its claims at its marginal price. (An even lower price would imply that banks are hurt, which would not be feasible to the extent that banks' participation is voluntary.) In practice, banks may retain bargaining power and may be able to obtain higher-than-marginal prices even with perfect coordination. Furthermore, perfect coordination may not work because it is difficult to bar individual banks from free-riding. But even a small amount of coordination would still represent an advantage to the country over the simple market-based approach to the extent that less than the ex-post average price is paid.

A more important problem with the concerted approach is, however, the heterogeneity of banks and the imperfect observability of this heterogeneity. If creditors differ in their relative

valuation of country debt, a DDSR operation that does not discriminate between banks, and that at the same time hurts no bank, must occur at the reservation price of the bank with the highest valuation. This may prove extremely costly. Attempts to discriminate between banks in a concerted approach require unobservable information and are subject to adverse selection problems.

Experience with concerted approaches brought these problems to the surface. Concerted agreements focusing on new lending characterized the 1982-88 period. The process, however, broke down over time as the interests of the different banks increasingly diverged. By 1988, the new money process came to a halt--in spite of U.S. Secretary Baker's repeated calls for a strategy of "growth out of debt". The banks that valued the claims the most were inclined to press for a continuation of the concerted new money approach, while those with low exit cost opposed the process, and free rode at an increasing rate (possibly on official creditors in part).

The case for a menu-based approach to debt reduction

By 1988, investment banks were working hard on schemes that would allow the low exit cost banks to leave rather than further veto concerted new money deals. Equipped with its recent experience with informal swaps (that extinguished over \$10 billion of private debt in 1988), Brazil innovated by developing the first menu-based deal in 1988. This was followed by the Mexican Morgan deal of 1989. This led the way for the more sophisticated menu-driven deals of the Brady plan. The menu-based approach allows the creditors to self-select, with only those with low valuations selling out at a particular price and others remaining, while avoiding any free-riding. We will argue below that this menu-based approach retains the coordination

features of the concerted approach but is more efficient than it.

Recent agreements (Brazil 1988, Mexico 1989, Philippines 1989, Costa Rica 1989, Venezuela 1990, Uruguay 1991, Nigeria 1992, and some deals under negotiation) have used an approach different from market-based and concerted to reduce external debt. The agreements have included a menu of options from which creditors select. This pre deal agreed-upon menu is thus a contract, that may be partly implicit, establishing a future choice set for the lenders. The menu approach requires that lenders choose from a restricted set of actions post deal, and therefore, like in a concerted approach, cannot free ride. The possible means for enforcing such a choice include creditor country legal and political institutions. In the Brady deals to date, free-riding has been prevented through a variety of mechanisms, including "novation", political pressures and forms of financial engineering. For example, in the Mexico 1989 agreement, existing debt contracts were rewritten such that the previous agreements, both between the debtor and the creditors and among creditors, were no longer binding--the so called novation.¹¹ In the Venezuela and Uruguay agreements, fully collateralized, short-term notes were used to overcome a restriction on buybacks. Political pressures were particularly strong in the case of Mexico. In addition, the IFIs have at times made it clear that they would condone arrears to commercial creditors (and lend into arrears themselves) if the country had negotiated in good faith but no agreement was reached, thus increasing pressure on all banks to recontract.

¹¹The major implication of this novation was that debt which is exchanged into the new instruments (including some of the new money provided) would no longer be subject to the sharing clauses and non-participating creditors would not be able to share equally in payments made by Mexico on its restructured debt. For instance, in case Mexico would pay in full on the new instruments, but would not pay in full on debt which was not exchanged, the holders of the non-exchanged debt would not be able to share in the payments the holders of the new instruments receive. The "novation" clause gave claim holders a greater incentive to accept one of the three options and drastically reduced the problem of free-riders.

Discrimination can lead to gains for the debtor country. By combining concerted and choice characteristics, the menu-based approach to DDSR retains the advantages, but not the drawbacks of each of the two mechanisms described above. The options on the menu and their relative pricing are negotiated first; in a second round, each creditor freely chooses his preferred option. By negotiating on a menu pre deal and allowing banks to choose post deal, a better burden sharing among the commercial banks can be achieved without unsurmountable coordination problems, and the debtor country can get a better overall deal. In effect, the menu-based approach to DDSR can allow the debtor country to act as a discriminating monopsonist: by judiciously tailoring the relative terms and prices of items on the menu, the debtor extracts more from each creditor.

What have been the tools used to achieve this discrimination? Recent menus have offered banks to swap their old claims for a portfolio of exit instruments--and sometimes for cash (buybacks)--or for a commitment to provide new money, so as to accommodate the needs of the banks that prefer to exit as well as those of the banks that prefer to remain exposed to the country. Buybacks have not been used extensively, and in most deals, DDSR has been accomplished by exchanging old debt for new instruments--exit bonds--with a lower contractual obligation but, also, with a higher security. The latter has been achieved by pledging a secure asset (usually US Treasury bills or bonds) against specific payments of the bond (see further Annex table 1 for a description of the actual instruments used in recent agreements). The contractual reduction in obligations has been offered in several ways to accommodate the regulatory, accounting, and tax practices of the different types of banks and the liquidity needs of the country. In particular, two instruments have been heavily used, a discount bond that

reduces the principal obligation, and a par bond that reduces the interest rate.¹²

It is clear that exit instruments can be tailored to minimize the cost of debt reduction. But there may be some banks (with very high exit cost) that would only be willing to exit when the value of the exit instruments is very high. To buy out the high exit cost banks using an exit menu option would dramatically increase the cost of debt reduction to the debtor since all banks would tend to choose this more valuable option. On the other hand, allowing the high exit cost banks to remain on the sideline, would imply a breakdown of the whole menu approach.

In the recent menu-based deals, this problem was addressed by requiring any bank that refused to exit at a "reasonable" price to contribute something else. Since non-exiting banks get a capital gain on their existing exposure, they were required to remit (part) of this capital gain through a new money "tax". As an illustration of this mechanism, consider the situation where the pre deal price is 40 cents and the post deal price rises to 45 cents, a 5 cents gain. If remaining, non-exiting banks holding \$30 billion of claims provide now \$2.7 billion in new money, they will have a loss on the new money of $(100-45)*\$2.7 \text{ billion} = \1.5 billion . It turns out that they are still equally well off as in the status-quo since the capital gain on their remaining claims, $5*\$30 \text{ billion} = \1.5 billion , will offset exactly the loss on the new money. In this way, the overall costs to the debtor of DDSR is not determined by the reservation price of the high exit cost bank.

The importance of banks' heterogeneity deserves a more detailed substantiation. Banks can differ for a number of reasons. The reasons include differences in national regulatory and tax framework (Hay and Paul 1991); the extent to which a commercial bank has other business

¹²More recently, par bonds where the interest rate starts at low levels and is stepped up over time have also been introduced (so-called FLIRBs).

interests in the debtor country creating an extra benefit to lending; differences in expectations (Williamson, 1989); alternative business opportunities; and bank size in the presence of fixed costs associated with recontracting and monitoring the debtor's economy (Fernandez and Ozler, 1991). The existence of a secondary market for sovereign debt suggests that the marginal value of a debt claim should be the same for all participating banks. In a sense, the market should already neutralize the effects of any bank heterogeneity. If this were the case, the arguments for using a menu would be weak and a simple concerted agreement would be as effective.

But it seems unlikely that the secondary market is able to fully take away the effects of heterogeneity. This is because banks that sell debt at a discount face exit costs which depends on the particular situation of the exiting bank. For example, accounting practices and capital adequacy rules in the United States discourage bankers with relatively large exposure to participate in debt reduction by requiring a bank that sells part of its loans to a given country to mark down whole or part of its portfolio of loans to that country. For U.S banks with relatively large exposure this would mean wiping out a large portion of reserves. Similarly, banks with large exposure may face higher regulatory costs when buying a claim than banks with small exposures. The existence of exit and entry cost thus creates a wedge between the price at which debt is sold, and the net payout that accrues to the seller, and vice-versa when debt is bought. As a result, debt may not be transacted at all in the secondary market when differences in valuation are smaller than this wedge. And if trading occurs, the secondary market price observed will likely reflect the lower end of banks' valuations.

While heterogeneity may give rise to a secondary market, the market is thus not likely to eliminate the effects of heterogeneity completely. Because of heterogeneity, the menu-based

approach allows the debtor therefore to pay less for the same debt reduction, compared to market-based and concerted DDSR, by exploiting the differences among banks arising from the structure of their balance sheet, the regulatory system within which they operate, and their overall business strategies. The menu can create "value" through offering instruments better suited to the systems or situations in which the individual bank operates.¹³ For example, a bank that wants to exit, but cannot afford the regulatory cost of a full exit, may prefer a par-bond that allows it to spread the regulatory costs of exit over a number of years. Heterogeneity across lenders also implies that the choices the banks make from a menu will depend on their own characteristics.¹⁴

¹³Although both parties see it as additional value, to the extent that it is obtained through regulatory and tax loopholes there is no true efficiency gains involved, but rather the shifting of risks and losses to creditor countries and their taxpayers. From the debtor country's point of view, the case for using the menu-approach does not rely on the assumption that the financial cost to the country is the mirror image of financial gains to external creditors; it is entirely based on how various negotiation mechanism affect the payment needed to compensate banks in a given DDSR agreement.

¹⁴This issue is explored in depth in Demirguc-Kunt and Diwan (1990) who show, using the experience of the Brazil 1988 debt deal, that 80 percent of bank choices between exit and relending options can be explained by measures of financial strength, nationality, exposure, and long term interest in the country (as proxied by the existence of branch offices in the debtor country). See also Diwan and Spiegel (1991) and Diwan and Kletzer (1991).

III. EXPERIENCE OF BRADY DEALS

We now discuss the five most recent menu-based deals: Mexico, Philippines, Costa Rica, Venezuela, and Uruguay. The agreements are described in Annex table 1 (more detail can be found in World Bank 1990 and 1991). Negotiations were relatively slow in Mexico, the Philippines and Costa Rica. In each of the three cases, the approach followed was an innovation relative to previous deals. Mexico's strategy was to spread the needed debt reduction among a large group of banks, to develop a simple menu, and to work hard on contractual issues--such as the novation clause--in order to produce marketable securities. The lack of a buyback option in the Mexico deal was due to the fact that many of the smaller banks had already exited in previous deals. The Philippines negotiations proceeded in parallel, but the approach followed was rather different. The main goal there seems to have been the exit of a large fringe of small banks, with the expectation that a sizable amount of new money could be extracted from the remaining large banks who could (for strategic or financial reasons) afford to take a longer view. The Costa Rica negotiations were also slowed down by the search for innovative solutions. The main problem there was how to treat arrears in the context of a menu deal. On the other hand, the negotiations proceeded quite briskly for Venezuela and Uruguay, where the degree of innovation was modest.

The extent of debt reduction

Table 1 reports for each of the countries the eligible commercial and total debt before the exchange. In all cases, non-commercial claims, short term debt as well as bonds were left out from the eligible base. While the official sector shared in the debt relief burden by providing loans or reschedulings, short term debt and bonds were not subjected to reschedulings

or DDSR. The eligible debt as a share of total debt varied from 59 percent in Venezuela to 23 percent for the Philippines.

Since the deals involved various bond exchanges and buybacks, as well as provisions of new money, the net present value (NPV) of DDSR is used as the measure of the extent of contractual debt reduction achieved and the degree of exit involved. Table 1 reports separately as well as combined the NPV of debt reduction and debt service reduction, with the effect of recapture clauses shown separately (see Claessens and van Wijnbergen (forthcoming) for the calculations). This measure of debt reduction, before taking into account the new money provided by commercial banks, is the Gross DDSR. The largest relative amounts of Gross DDSR were for Costa Rica and Uruguay (71 and 49 percent respectively), where DDSR was to a large extent achieved through buybacks. Mexico, Venezuela, and the Philippines reduced their initial eligible debts by between 20 percent and 30 percent. Net DDSR, that is Gross DDSR minus new money from commercial banks, also shown in Table 1, is of course smaller.

An important feature of most of the deals that needs to be taken into account in arriving at a final measure of the effective debt relief is the impact of collateralization of part of the new debt. The up-front purchase of collateral in the form of secure foreign bonds is essentially a prepayment of the collateralized debt service obligation: the resources needed for payment are already set aside beyond the country's control and are not subject to country risk. Therefore, from the point of view of commercial banks these resources are financially equivalent to cash and, like in an actual prepayment, the corresponding debt obligation is no longer a claim on the country's future resources. Table 1 also reports the prepayment equivalent of both principal and

interest collateral.¹⁵

The best way to summarize the overall commercial debt relief achieved in these operations is now the "debt reduction equivalent" or DRE. The DRE is defined as the Net DDSR plus the portion of debt that is implicitly prepaid through the provision of suitable collateral. Table 1 presents the DRE for each of the five countries. The DRE ranged from 10 percent of the original face value in the case of the Philippines to over 70 percent in the case of Costa Rica. The shallowness of debt reduction in the case of the Philippines was mainly due to its success in attracting new money, which more than financed the compensation to exiting banks.¹⁶ In the aggregate, for the five countries combined, commercial bank debt was reduced by more one third.

Table 2 reports the financing of the enhancements, in the form of additional and non-additional (set-aside) loans, new money from the commercial banks and the country's own resources, the latter including the set-asides loans. It is worth noting at the outset the distinction between the additional and non-additional official loans used to finance the enhancements. Additional loans would not have accrued to the country in the absence of the agreement. In practice, the distinction between funds that have already been committed and new funds is often fuzzy. We consider here the IFIs' set-asides as the only non-additional loans. Of the total financing, 44% was from additional, official loans; the remainder was equally divided between commercial banks' new loans and diversion of the country's own resources (including set-

¹⁵We will discuss later the distinction between principal and interest collateralization and the valuation of the later.

¹⁶It should be noted, however, that the new money component of the arrangement came several months after the buy-back and could be considered a separate agreement. In that case, commercial bank debt reduction in the Philippines would be on the order of 20 percent.

asides). Table 2 also reports how the resources were divided over buybacks, principal collateralization and interest support.

On the whole, taking into account the additional, official loans, the five countries' total external debt was effectively reduced by about one ninth. The reduction ranged from essentially zero in the case of the Philippines to slightly over 20 percent in Costa Rica.

Cost reduction in Menu-based operations

An important issue in evaluating the arrangements is whether the use of the menu approach has allowed the debtor to reduce debt at better than post deal prices. We argued above that a menu approach would allow for debt reduction below the post deal price whereas market-based debt reduction would occur at the post deal price. For buybacks this can in principle be established by comparing the buyback price with the post deal price. In case of a new money call, the effective value creditors receive is the post deal value of its original deal claims (rescheduled debts--including the capital gain on it--and the new money provided) minus the capital loss on the new money they provide. Its associated effective price can then be compared to the post deal price. In a debt exchange, old debt is swapped for a new instrument which is a combination of uncollateralized (reduced payments) claims and riskless enhancements. For each unit of old debt, the creditors therefore receive some enhancements, which amount to a prepayment--or a partial buyback, and a capital gain on the uncollateralized portion as the debt price increases.

In the context of a debt exchange, the question regarding the concertedness of the agreement is whether the debtor has received sufficient concessions from its creditors in

exchange for the capital gain they experience on the uncollateralized portion of the new instruments. If the debt exchange is market-based, the capital gain is not taxed, i.e, the uncollateralized portion of the debt "free-rides". The net result is that the ratio of enhancements (net of new money and valuing the interest collateral appropriately) to the DRE is equal to (or above) the post deal debt price. If the exchange is part of a menu agreement, then banks are asked to also provide concessions in exchange for the capital gain on the uncollateralized portion. In that case, the ratio of net enhancements to the DRE will be below the post deal debt price and the arrangement would be equivalent to a partial buyback below the post deal price.

We can now analyze the behavior of debt prices at the time the agreements were finalized. Since the prices quoted before and after the exchange are prices of different instruments--the deal retires old, non-enhanced claims and replaces them with new instruments which are combinations of country risk and enhancements--we need to extract from the prices of these instruments a post deal debt price that is comparable to the pre deal price. In other words, the raw prices need to be stripped of the values of the principal collateral and the interest guarantee. Except for the interest guarantee--a financial innovation--this is a simple task (see the discussion on the DRE). To obtain an estimate of the value of the interest guarantee, we use the model of Clark (1990) who obtains an estimate of the value as one minus the stripped debt price, times the face value of the interest collateral.¹⁷

Table 3 reports the post deal prices extracted from the raw prices of enhanced

¹⁷This model has the following desirable property: if the debt price is one, the interest guarantee does not provide any additional value, while it provides full additional value if the debt price is zero. Fernandez-Arias (1992) presents the case when the interest guarantee's market value is set at its face value.

instruments immediately after the exchanges took place.¹⁸ Table 3 can be used to compare the post deal (stripped) price in each deal with the applicable price of the old claims at the time of the exchange. This price represents the average value per unit of debt the creditors got in the deal (AVC). Table 3 also reports an estimate of the pre deal price (see below).

We can use the AVC as a measure of how market-based the deal was: if the AVC is close to the post deal price, then the deal is not much different from a market-based operation. However, if the AVC is below the post deal price, then the concerted deal is significantly cheaper than a market-based operation. Table 3 shows that the AVCs are below the post deal stripped prices. This is thus direct evidence that the terms at which debt reduction was achieved were better than what would have occurred under a market-based approach. The difference between the AVC and the post deal price is the greatest for Costa Rica and the smallest for the Philippines.

The AVC and the post-deal allows us to compute that the cost of DDSR, if done using the market-based approach, would have costed more than \$8 billion over the cost actually incurred using the concerted menu approach.¹⁹ Therefore the coordination and efficiency achieved with the menu approach may have saved the countries more than \$8 billion. This \$8 billion saving may amount to a cost reduction of more than 50% when compared to an estimate of the total financial cost, developed below.

¹⁸Arguably a more recent price could be used since there is some evidence of a "learning curve" in the market for sovereign debt, making the initial post deal price a less useful indicator. It also appears that the market has become more efficient. For instance, for a few months after the initial introduction of the Mexican Brady bonds, the stripped prices of the par and discount bond differed considerably from each other (leading to arbitrage opportunities), but this difference vanished in the third month of trading. But more recent price are also dependant on the exogenous shocks that occurred after the exchange.

¹⁹This larger market-based approach cost can be constructed as an upper estimate of the size of the indirect benefits obtained from DDSR along the lines of the methodology developed in Bulow and Rogoff (1991).

Financial gains of commercial banks

The AVC gives an average measure of the value retained by each creditor. A closer look at the prices of each of the instruments right after the exchange took place reveals that some of the options on the menu (normalized per unit of old debt) had different post deal values. At the same time, not all banks chose the same options at the actual exchange. This can only be because of differences in valuation between banks of the various options. If all banks valued the options in the same way, then they all would have picked the option expected to offer post deal the highest value. The clearest example is provided by the Venezuelan agreement (see Table 4). Excluding the new money option (this option was rationed as it was oversubscribed)²⁰, the different exit options ranged in value between 45 and 49 cents. Yet many of the banks chose the least valuable option (the buyback), indicating that because of heterogeneity, options with the same intrinsic market value do not have the same opportunity value to each individual bank.

From the debtor country's perspective, the larger the difference between the AVC and the post deal, the better the deal it obtained. However, a large difference between the AVC and the post deal price is not a sufficient for the deal to be "good" for the debtor compared to the status quo since the AVC may still be higher than the price that would have prevailed in the absence of a DDSR agreement. Figures 1 to 5 depict for each deal the AVC and the series of prices prevailing from before the announcement of the Brady plan until the date of the exchange. As can be observed, market prices moved in anticipation of the finalization of the agreement, the date of the exchange. Indeed, in the few weeks before the exchange actually took place, debt prices converged smoothly toward the AVC as the uncertainty about whether the exchange would

²⁰ In the case of Venezuela, oil prices moved up between the agreement date and the actual exchange (because of the Gulf crisis). As a result, Venezuela's debt became more valuable, and more banks than expected chose the new money option which thus had to be restricted.

actually take place was reduced.

The status comparison price should thus not be the price right before the exchange but instead be taken when expectations about a deal were sufficiently low. In the absence of exogenous shocks during the interim period, the best the debtor can hope to achieve without hurting the banks is an AVC which is equal to the price prevailing before DDSR was considered a possibility. However, Figures 1-5 make it clear that in most cases, the AVCs were halfway between the post deal prices and the prices prevailing when expectations about a value increasing agreement were still low (say the date right before the Brady speech).²¹ The overall picture that emerges is that the deals were done at prices halfway between a market-based transaction and a concerted operation that would have left banks at their initial payoff level. On the basis of this analysis, banks would thus appear to have gained substantially.

That commercial banks made financial gains should not be surprising since the operations are voluntary in nature and, therefore, they do not expect to lose. Nevertheless, prices moved because of several exogenous events, particularly the oil price increase due to the Gulf crisis and changes in world interest rates, which makes it difficult to develop a point estimate of the changes in prices due to all exogenous shocks (see Claessens and van Wijnbergen (1991) for a methodology). Instead one can investigate whether the price at which banks would not have made a gain, the AVC, is likely to have prevailed without exogenous shocks. The use of debt valuation models based on fundamental underlying variables strongly suggests that the applicable pre-deal price, cleaned from expectations, is in general well below the AVC and that, therefore, banks made gains. While secondary market prices have been erratic and do thus not provide

²¹ Fernandez-Airias (1992) obtains the result that the average market prices would have to be 32 cents downward biased to make the aggregate financial cost to the countries zero. Valuing the interest guarantee at one minus the post deal price, this necessary downward bias becomes 15 cents.

an accurate measure of expected payments, there is no strong reason to expect a systematic and substantial bias.

The gains per unit value can be translated into absolute gains, measured by the difference between the market value of the aggregate portfolio held by the banks after and before the exchange using the average market prices in the month before the Brady plan was announced (March 10, 1989).²² (See Table 5.) On aggregate, the banks increased the value of their loan portfolios by \$5.3 billion.²³ In all cases banks gained from the deal, with the ranking of the relative gains as follows: Costa Rica, Venezuela, the Philippines, and Mexico, followed by Uruguay.

Financial cost to debtor countries

We finally turn to an overall evaluation of these agreements from the debtors' point of view. This is achieved by developing estimates of the direct financial costs of the agreements to the debtor, the counterpart to the gains of the (commercial) creditors, using market information. If no other creditor is subject to country risk, the financial cost to the country is the counterpart to the financial gain of the commercial banks. Otherwise, capital gains on existing debt of other creditors benefiting from commercial bank debt reduction also need to be counted as financial cost. In addition, for the official creditors, additional lending may entail losses. Non-additional, official loans would have been extended to the country even in the

²² The value after the exchange is the total value of all the new instruments including the new money provided, plus the cash received from buybacks minus the face value of new money provided.

²³ The gains are much larger when evaluated at more recent prices. There are two exogenous reasons for this phenomenon. Clearly, the (unexpected) decline in interest rates from about 10% at the time of the Brady-speech to about 6% in 1991 has increased the value of those instruments with fixed interest rates. In addition, the Gulf crisis led to increased export earnings for Mexico and Venezuela--and better prospects for their oil industry in general. But there are also indications of some learning, with the market discovering that DDSR agreements had a much more positive effect than expected for some countries.

absence of a debt agreement. We therefore continue to treat those funds as if they came from the country's own reserves.

When all other debt is assumed to be riskless, the financial cost of the agreement for the country is the difference between the market value of commercial bank claims before the agreement and just after the exchange of instruments. As reported in Table 5, the gains to the banks for all countries were \$5.3 billion, which implies that the total loss for the countries is also \$5.3 billion.

This assumes that official loans are riskless, i.e., that they are expected to be fully serviced in the future. This assumption may influence the estimate of the direct costs to the extent that existing official claims are impaired and, correspondingly, new, additional loans contain an implicit "grant" element. Since there is no consensus on the precise status and price of official debt, we assume as an alternative that official and commercial loans have the same seniority status (see Bulow, Rogoff and Bevilacqua (1992) for analytical and empirical findings on the relative seniority of official claims). Since we have no prior on the status of other, non-official debts, we treat these debts also as if they have the same value as commercial debts. The debtors' financial costs under this scenario is then reduced by the grant element on the additional official loans, which are only valued at the post deal stripped price instead of at one. The cost will be increased, however, because of the capital gain other creditors received as a result of the DDSR deal, i.e., the change in the market value of other debt outstanding, calculated by applying the difference between the pre deal and post deal stripped price to all other debt (inclusive of the set-asides).

The estimated costs under this alternative turn out to be much larger than in the riskless other debt scenario. For the five deals, we get a total direct cost of \$18.4 billion (see Table 5). The large loss is due to the large capital gains other creditors make as a result of the DDSR; on

average, the post deal price is 18 cents higher than the pre deal price. But, the additional official loans are now only valued at the post deal price instead of at one. Thus, the capital gain of the other creditors is somewhat offset and, on net, a \$13.1 billion gain for the other creditors results. This translates into a 40 percent increase when compared to the initial market (value of their claims valued at the pre deal commercial bank price). The commercial banks gain remains \$5.3 billion, or a 19 percent increase compared to their pre deal market value.

IV. CONCLUDING REMARKS

Our main analytical conclusions are twofold: a DDSR operation is likely to be financially costly for the debtor country mainly because banks would not voluntarily enter into agreements that reduce their payoff; and this financial cost can be minimized if the deal follows the menu-based approach, where the expected rise in debt price for non-exiters is taxed away.

An evaluation of the recent menu driven agreements supports these conclusions. First, debt reduction was achieved at better than market-based terms. Second, the success of the menu-based approach has been relative rather than complete, in the sense that DDSR deals have still provided banks with important gains relative to before the Brady deal was announced.

Therefore, a DDSR agreement is still only beneficial to the debtor country when the DDSR leads to significant efficiency improvements in its economy or in its external financial relations. The Brady agreements are too recent to allow us to quantify exactly the actual impact on the debtors' macroeconomy using economic aggregates. In addition, other factors may have affected those aggregates (most notably the extent of the adjustment effort, the recent changes in world interest rates, and the recent Gulf-crisis). The important policy implication nevertheless is that DDSR agreements--since they always involve costs for the debtor--can only provide gains to the debtor in the context of an adjustment and reform strategy when there are good reasons to believe that the efficiency gains will compensate for the direct financial losses.

Implications of our analysis for actual DDSR-proposals are the following: (i) using the recent experience, identify better how DDSR influences the domestic economy. An improvement in our understanding of the way in which efficiency gains come about can lead to larger future indirect benefits, allowing the debtor to ask for larger current concessions from the banks; (ii) improve the financial engineering in the deals. In particular, agreements could be indexed on any exogenous uncertainty between signing of agreement and actual exchange. This

would reduce the occurrences of mispricing of some options and can increase confidence that there is sufficient financing for enhancements; and (iii) to allow the debtor countries to successfully resolve their debt crisis--and not to let the Brady plan increase the payoff of commercial banks, the bargaining power of the debtors needs to be strengthened.

Table 1: Debt Face Values and DDSR
(millions of dollars unless noted otherwise)

	Total External Debt (1)	Commercial Bank Debt ¹ (2)		Debt Reduction ² (3)	Debt Service Reduction ³ (4)	Recapture Clause ⁴ (5)	Gross DDSR (6) = (3) + (4) - (5)	
		\$	% of Total				\$	% of Commercial Bank Debt
MEXICO	\$95,416	\$47,170	49%	\$7,061	\$7,948	\$858	\$14,151	30%
PHILIPPINES	\$28,468	\$6,600	23%	\$1,340	\$0	-	\$1,340	20%
COSTA RICA	\$4,603	\$1,608	35%	\$1,029	\$115	-	\$1,144	71%
VENEZUELA	\$23,491	\$19,011	59%	\$1,921	\$2,677	\$186	\$4,412	23%
URUGUAY	\$3,707	\$1,610	43%	\$628	\$169	\$11	\$786	49%
TOTAL	\$164,685	\$75,999	46%	\$11,979	\$10,909	\$1,055	\$21,833	29%

	New Money ⁵ (7)	Net DDSR (8) = (6) - (7)		Prepayment Equivalent of Principal Collateral ⁶ (9)	Prepayment Equivalent of Interest Collateral ⁷ (10)	Prepayment Equivalent of Collateral (11) = (9) + (10)	Debt Reduction Equivalent (DRE) (12) = (8) + (11)	
		\$	% of Commercial Bank Debt				\$	% of Commercial Bank Debt
MEXICO	\$1,027	\$13,124	28%	\$3,465	\$1,787	\$5,252	\$18,376	39%
PHILIPPINES	\$690	\$650	10%	\$0	\$0	\$0	\$650	10%
COSTA RICA	-	\$1,144	71%	\$0	\$22	\$22	\$1,166	73%
VENEZUELA	\$1,166	\$3,246	17%	\$809	\$363	\$1,172	\$4,418	23%
URUGUAY	\$89	\$697	43%	\$57	\$14	\$71	\$768	48%
TOTAL	\$2,972	\$18,861	25%	\$4,331	\$2,186	\$6,517	\$25,378	33%

Source: World Debt Tables (1990/91 and 1991/92) and Quarterly Review of Financial Flows (various issues)

¹Eligible commercial bank debt.

²Face value of debt reduced by buybacks and discount bonds.

³Present value of debt service reduction on par bonds (10% discount rate).

⁴Expected present value of service under recapture clauses.

⁵Present value of new money to be disbursed by commercial banks.

⁶Face value of principal collateral.

⁷Since the interest guarantee is rolling and would only be drawn at some point uncertain in the future, and since interest on guarantee fund goes to the country, the prepayment equivalent of the interest guarantee is less than its face value. The prepayment equivalent of the interest collateral is estimated as its face value multiplied by the post-operation stripped discount (see Table 3).

Table 2: Usage of Enhancements and Financing of Enhancements
(Millions of dollars)

	Usage of Enhancements				Financing Sources for Enhancements			
					Official Debt		Commercial	Country
	Buyback	Principal	Interest	Total	Additional ¹	Set Asides ²	New Money ³	Liquidity ⁴
MEXICO	\$0	\$3,465	\$3,717	\$7,182	\$3,732	\$1,847	\$1,027	\$2,423
PHILIPPINES	\$670	\$0	\$0	\$670	\$107	\$320	\$690	(\$127)
COSTA RICA	\$188	\$0	\$37	\$225	\$177	\$0	\$0	\$42*
VENEZUELA	\$647	\$809	\$924	\$2,380	\$687	\$1,010	\$1,166	\$527
URUGUAY	\$352	\$57	\$54	\$463	\$140	\$86	\$89	\$234
TOTAL	\$1,857	\$4,331	\$4,732	\$10,920	\$4,843	\$3,263	\$2,972	\$3,099

Source: World Debt Tables (1990/91 and 1991/92) and Quarterly Review of Financial Flows (various issues)

¹The face value of the additional official debt (including IMF) disbursed in the context of the deal.

²The face value of non-additional existing official debt (including IMF). We consider here the IFIs' set-asides as the only non-additional funds.

³The NPV of the new moneys to be disbursed by commercial banks.

⁴The usage of the country's own reserves, including set-asides.

* Does not add up due to a grant and other external financing.

Table 3: Prices

	Stripped Prices		Average Value to Creditors (AVC) ¹
	Pre ² -Operation	Post ³ -Operation	
MEXICO	0.36	0.52	0.41
PHILIPPINES	0.40	0.52	0.46
COSTA RICA	0.12	0.39	0.24
VENEZUELA	0.37	0.61	0.50
URUGUAY	0.56	0.74	0.60
TOTAL	0.37	0.55	0.44

Source: Salomon Brothers and Authors' calculations

¹The Average Value to Creditors (AVC) is defined as the post-operation value of the new portfolio, comprising post-operation debt claims (inclusive of enhancements) and payments applicable in connection with buybacks net of new money provided, as a fraction of the face value of the debt before the operation.

²The pre operation price is the average price in the month before the Brady plan was announced (March 10, 1989).

³The post operation price is the price right after the deal has been finalized and bonds are exchanged, expressed as a stripped price. The stripped price is estimated as the market value of debt after the deal (as also used for the AVC) minus the prepayment equivalent of collaterals (column 11 in Table 1), divided by the face value of commercial debt (column 2 in Table 1) minus the DRE (column 12 in Table 2). See Lamdany and Underwood (1989) for alternative stripping models.

Table 4: Value of Individual Instruments
(Cents per dollar, unless otherwise noted)

	MEXICO	PHILIPPINES	VENEZUELA	URUGUAY
Par Bond	41.81	NA	49.25	56
Discount Bond	41.03	NA	48.3	NA
Buyback Price	NA	50	45	56
FLIRBS	NA	NA	49	NA
New Money Value	31.25	46.5	53	68.7
Input Prices for New Money:				
New Money Bonds A	NA	65	67	68.5
New Money Bonds B	NA	NA	63	NA
Conversion Bonds	NA	NA	60	75
Rescheduled Claims	45	50	NA	NA
New Money Call (fraction)	0.25	0.1	0.2	0.2

Source: Salomon Brothers, Annex Table 1, and Authors' calculations

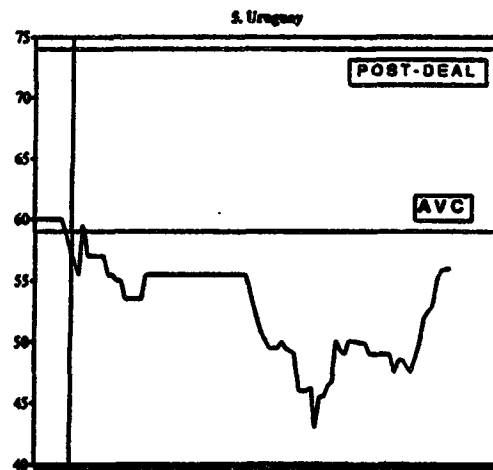
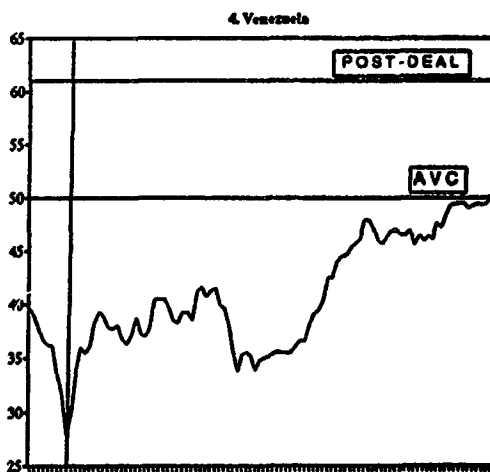
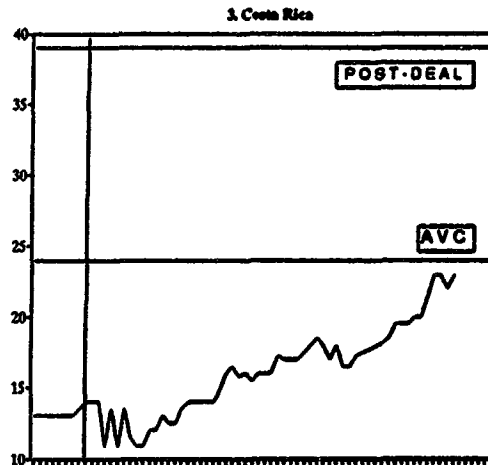
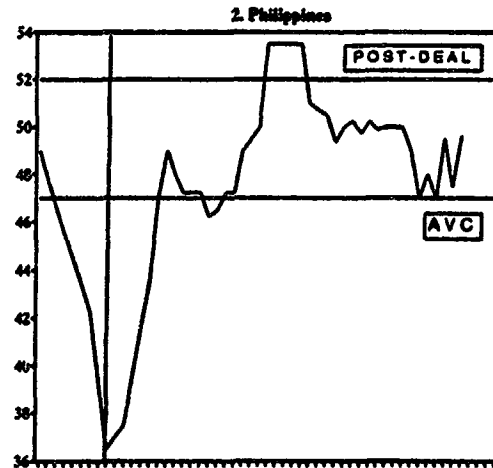
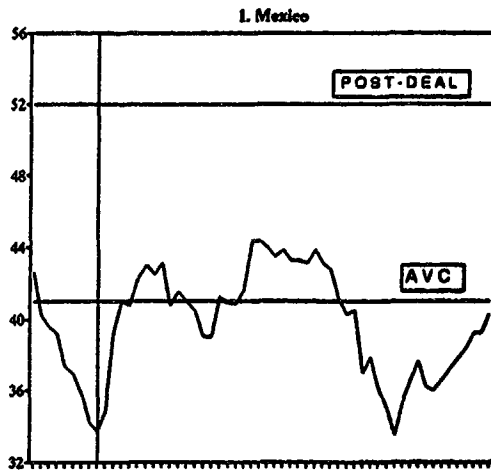
Table 5: Financial Cost to the Country
(Millions of dollars)

	Other claims are riskless ¹	Other claims are equal in seniority ²
MEXICO	\$2,189	\$8,368
PHILIPPINES	\$451	\$3,151
COSTA RICA	\$193	\$907
VENEZUELA	\$2,444	\$5,583
URUGUAY	\$53	\$407
TOTAL	\$5,330	\$18,416

Source: Authors' calculations

- ¹ Costs to the country are the financial gains of the commercial banks, calculated as the post-operation market value of the commercial bank debt portfolio subtracted from the pre-operation market value of the commercial bank debt.
- ² The costs as in the first column plus the additional costs to the country as the result of the financial gains of other creditors assuming that all of them have the same seniority status as commercial banks. These financial gains of other creditors are calculated as the capital gains on existing debt (the difference between post-operation and pre-operation prices times the face value of other claims) and the financial loss associated with additional lending (using the post-operation stripped discount).

Secondary Market Prices Before Operation Conclusion a/



a/ Prices expressed as cents per dollar of face value. First price shown is the first quote in 1989 (01/07/89) and last price shown is the last quote before the conclusion of the operation. The vertical line shows the date of the Brady announcement (03/10/89).
When trading on old debt stopped, quotes on par bonds were used.

Source: Salomon Brothers.

References

- Bulow, Jeremy, and Rogoff, Kenneth (1989a). "A Constant Recontracting Model of Sovereign Debt," Journal of Political Economy, 97. 155 - 178.
- Bulow, J. and Rogoff, K., (1989b), "The Buyback Boondoggle", Brookings Panel on Economic Activity, Washington, D.C., Sept.
- Bulow, J. and Rogoff, K., (1991), "Sovereign Buybacks: No Cure for Overhang", Quarterly Journal of Economics, June.
- Bulow, J. and Rogoff, K., and A. Bevilacqua, (1992), "IFI Seniority and Burden Sharing in the Former Soviet Bloc", Brookings Panel on Macro Economic Activity, April 2-3, mimeo, Stanford and Berkeley.
- Carmichael, J., (1989), "The Debt Crisis: Where do We Stand After Seven Years?" World Bank Research Observer, Vol. 4, No.2, 121-42.
- Claessens S., I. Diwan, K. Froot and P. Krugman, (1991), "Market-Based Debt Reduction Schemes: Principles and Prospects", Policy, Research and External Affairs Research Series, Number 16, February 1991, World Bank.
- Claessens, S. and S. van Wijnbergen, (1990), "An Option Pricing Approach to Secondary Market Market Debt: Applied to Mexico", PRE Working paper No. 333, The World Bank
- Claessens, S. and S. van Wijnbergen, (forthcoming), "The 1990 Mexico and Venezuela Recapture Clauses: An Application of Average Price Options", Journal of Banking and Finance.
- Clark, J., (1990), "The Evaluation of Debt Exchanges", IMF working paper, WP/90/9.
- Demirguc-Kunt, A. and I. Diwan, (1990), "The Market Based Menu Approach in Action: An Analysis of Commercial Bank Choice Behavior", PRE Working Paper No. 530, The World Bank.
- Diwan, I. and K. Kletzer, (1991), "Voluntary Choices in Concerted Deals; Mechanics and Attributed of the Menu Approach", World Bank Economic Review
- Diwan I. and D. Rodrik (1992), "Debt Reduction, Adjustment Lending and Burden Sharing", NBER Working Paper No. 4007, March, (Forthcoming International Finance Series, Princeton)
- Diwan I. and M. Spiegel, (1990), "Are Buybacks Back? Menu-Driven Debt-Reduction Schemes with Heterogenous Creditors, " PRE Working Paper No. 675, The World Bank.
- Dooley, M. (1989). "Buybacks, Debt-Equity Swaps, Asset Exchanges and Market Prices of External Debt," in J. Frenkel et al. (eds). *Analytical Issues in Debt*, Washington, D.C.: International Monetary Fund.

Eaton, Jonathan, and Gersovitz, Mark (1981). "Debt with Potential Repudiation: Theoretical and Empirical Analysis." Review of Economic Studies, 48, 289-309.

Fernandez, R. and Sule Ozler (1991), "Debt Concentration and Secondary Market Prices," PRE Working Paper No. 570, The World Bank.

Fernandez-Arias, Eduardo (1991), "A Dynamic Bargaining Model of Sovereign Debt," PRE Working Paper No. 778, The World Bank.

Fernandez-Arias, Eduardo (1992), "Cost and Benefits of Debt and Debt Service Reduction," PRE Working Paper No. ..., The World Bank.

Hay, J. and N. Paul (1991), "Regulation and Taxation of Commercial Banks during the International Debt Crisis," World Bank Technical Paper Number 158

Krugman, D. (1989). "Financing versus Forgiving a Debt Overhang." Journal of Development Economics, No. 29, 253-68.

Lamdany, Ruben and John Underwood (1989), "Illustrative Effects of Voluntary Debt and Debt Service Reduction Operations," World Bank, Discussion Paper No. 66, 1989.

Sachs, J. (1990), "The Debt Overhang of Developing Countries", in J. de Macedo and R. Findlay, eds. *Diaz Memorial Volume*, Helsinki: Wider Institute

van Wijnbergen, S. (1991a), "Mexico and the Brady Plan", Economic Policy, 12. April

van Wijnbergen, S. (1991b), "Debt Relief and Economic Growth in Mexico", World Bank Economic Review, Vol. 5, No. 3, pp, 437-55.

Williamson, J. (1988), *Voluntary Approaches to Debt Relief*, Paper 25, Institute for International Economics.

World Bank, World Debt tables, Edition 1990/1991.

World Bank, World Debt tables, Edition 1991/1992.

World Bank, Quarterly Review of Financial Flows to developing Countries, various issues.

Annex table 1 Summary of Officially Supported Debt Reduction Operations

Country	Type of deal	TIMING		Buybacks (percent)	EXIT INSTRUMENTS ^a		NEW MONEY INSTRUMENTS	
		Agreement in principle	Date concluded		Discount bonds ^b	Par bond	New money	New Terms on old debt
Mexico ^c	Concerted	09/15/89	02/15/90	-	65% maturity/grace 30/29 yr. int. L+13/16%	- maturity/grace 30/29 yr. int. 6.25%	25% maturity/grace 15/7 yr. int. L+13/16%	- maturity/grace 15/7 yr. int. L+13/16%
Philippines	Quasi-concerted	08/16/89 on buyback	01/22/90	50	-	-	N/A maturity/grace 15/8 yr. int. L+13/16%	- maturity/grace 15/8 yr. int. L+13/16%
Costa Rica ^{c,d}	Concerted	11/16/89	05/21/90	16	-	maturity/grace A: 20/10 B: 25/15 A: int. 6.25% B: int. 6.25%	-	-
Venezuela ^c	Concerted	06/25/90	12/17/90	45	70% maturity/grace 30/29 yr.	maturity/grace 30/29 yr. int. 6.75%	20% maturity/grace A: 17/7 yr. B: 15/7 yr. A: int. L+1% B: int. L+7/8%	maturity/grace 17/7 yr. int. L+1%
Uruguay ^c	Concerted	11/02/90	02/19/91	56	- 30/29 yr. int. 6.75%	maturity/grace 15/7 yr. int. L+1%	20% 16/7 yr. int. L+7/8%	maturity/grace

Notes:

L denotes LIBOR.

^a In addition to buybacks, discount bonds, and par bonds, there were the following exit instruments: for Costa Rica, past due interest bonds Series A and B, both with maturity of 15 years, grace period of nil years, and interest rate L + 13/16 percent; for Venezuela, front-loaded interest reduction bonds with maturity of 17 years, grace period of 7 years, and interest rate in consecutive years 5, 5, 6, 6, 7 percent and L+7/8 percent thereafter.

^b Exchange price expressed as percent of face value of old debt. A grace period of 1 year less than maturity stands for a bullet repayment.

^c Enhancements: Mexico: full principal collateral and 18 months of rolling interest guarantee for the par and discount bonds. Costa Rica: 18 months and 36 months of rolling interest guarantee for the par bond prices A and the interest arrears bond series A, respectively. Venezuela: full principal collateral and 14 months of rolling interest guarantee for the par and discount bonds and 12 months of rolling interest guarantee (during the first five years) for the FLIRB (front-loaded interest reduction bond). Uruguay: full principal collateral and 18 months of rolling interest guarantee for the par bond. For Venezuela, two types of new money bonds were available. Additional enhancements for these instruments include a recapture clause based on oil prices (Mexico and Venezuela), a commodity index (Uruguay), GDP evolution (Costa Rica), and a debt equity swap window.

^d In the Costa Rican agreement, creditors tendering at least 60 percent of their exposure for the buyback were offered Series A bonds: creditors offering less than 60 percent of their exposure for the buyback had to convert into Series B bonds. PDI bond = past due interest bond; creditors swapping into these bonds also received a 20 percent downpayment.

A. The 1989 Mexico Agreement

The steps involved in the Mexico agreement and the final outcome are illustrative of what happened with the other agreements (see van Wijnbergen 1991a for more details). Mexico and the steering committee of its creditor banks negotiated for approximately 4 months, starting right after the Brady plan had been announced (March 10, 1989). On July 23, 1989, after substantial political pressures, an agreement between Mexico and a committee of banks was reached on a menu. The final agreement was signed on February 4, 1990, debt was exchanged for DDSR bonds on March 28, 1990 and new money was provided in tranches thereafter. To avoid free-riding, the agreement included a novation clause (see footnote 5).

The menu covered about \$48.9 billion of medium-term and long-term commercial bank debt, or about half of Mexico's total debt, and included three options: (i) a discount bond, a bond with a discounted principal of 65 percent, chosen by 46.7%; (ii) a par bond, a bond with a low, fixed interest rate of 6.25 percent, chosen by 40.2%; and (iii) a new money call, 25 percent of existing exposure in total, chosen by 13.1%. The principal of both bonds was guaranteed through the collateralization of a 30-year, US Treasury (or equivalent) zero-coupon bond and the bonds also have a 18 months interest payment guarantee on a rolling basis through an escrow account.²⁴ In total an amount of \$5.6 billion from the World Bank, IMF, and Japan, and \$1.6 billion from Mexico's own reserves was used for enhancements.

B. The Philippines Agreement

The Philippines reached agreement in principle with its commercial banks in January 1990 on a "first phase" DDSR deal. In the deal the Philippines bought back \$1,337 million of its commercial bank debt in an auction at a price of 50 cents. The deal also involved the issuance of \$715 million of "new money" bonds (with a spread of 13/16 percent over US-dollar 6-months LIBOR). In an attempt to treat the new bonds as senior, the Philippines promised not to request restructurings of the bonds at any time and not to request any new money loans or other financial accommodations from the holders of the bonds.

The Philippines received \$427 million of support from the World Bank, the IMF and bilateral donors and used \$243 million from its own resources for the buyback. The parameters for a second phase debt reduction agreement have been announced recently.

C. The 1990 Costa Rica Agreement

The Costa Rica agreement reached in May 1990 contained no new money but offered only exit vehicles. Costa Rica had accumulated substantial commercial arrears since the mid-1980s which were included in the agreement. The deal included a buyback of debt (with its past due interest (PDI)) at a price of 16 cents. Banks that tendered at least 60 percent of their claims for buybacks could convert the rest of their exposure into a bond with a relatively short maturity (20 years, 10 grace), and a rolling interest guarantee. Banks that sold less than 60 percent of their exposure received a less valuable bond against their remaining exposure (25 years, 15 grace, no guarantees). Finally, the PDI that was not tendered for buyback was partly paid up front (20 percent) and partly rescheduled.²⁵

The buyback retired 61.5 percent of the outstanding debt. Together with the interest support and the down payment of the PDI, the cost of the deal amounted to \$225.5 million.²⁶ The deal did not involve the use of World Bank and IMF funds, but was financed with bilateral grants and loans and own reserves (\$42 million).

D. The 1990 Venezuela Agreement

In December 1990, Venezuela reached an agreement with its creditors on a Brady deal comprising new money, exchange bonds and a buyback (at a 55 percent discount). The new money call was set at 20 percent, spread over 4 years. \$1.15 billion was raised in new money with the old debt converted into uncollateralized conversion bonds (17 years, 7 grace, Libor + 7/8%). Only 7.3 percent of the debt was tendered for the buyback.

There were three exchange bonds: a par bond (fixed interest at 6.75 percent, 30 years bullet maturity, principal defeased and 14 month of rolling interest guarantee); a discount bond (exchanged at 30 percent discount, Libor+13/16%, 30 years bullet maturity, same enhancements as the par bond); and a "front loaded interest reduction bond" (FLIRB) (starting at 5 percent interest and rising over time, 17 years maturity, 7 grace, 12 month of rolling interest guarantee for the first 5 years).²⁷

The cost of the deal was about \$2.4 billion, financed by the IMF, the World Bank, and the Japanese Exim Bank (altogether about \$1.7 billion), and from Venezuela's own reserves.

E. The 1990 Uruguay Agreement

Reached in November 1990, the agreement contains a buyback at a 44 percent discount, a par bond (30 years maturity, principal collateralized and 18 month of rolling interest guarantee, 6.75 percent interest) and a new money call set at 20 percent. At the January 1991 exchange, 39 percent of the debt was tendered for buyback, 33 percent exchanged against the par bond, and 28 percent was restructured and provided new money. The cost of the deal amounted to \$463 million which was funded from the country's reserves and multilateral sources (IMF, the World Bank and IDB), and by the new money from commercial banks.

²⁴Both bonds are not subject to the sharing clauses which are standard in most syndicated loan agreements. In addition, both bonds include a recapture clause which stipulates that, in case the oil-price increased by a certain percentage in the years 1997 and beyond, that the creditors share in the increased revenue stream. The agreement further specified a certain number of relending options, in which banks are allowed to relend, up to a certain maximum fraction, their claims to Mexican public companies, and a debt-for-equity swap program.

²⁵There also was a recapture clause (with a cap) on both the bonds and the PDI rescheduling, based on real GDP growth, and debt for equity conversion rights for the bonds.

²⁶Only 4 percent of creditors free rode.

²⁷The three bonds also include detachable warrant for an upside value recovery tied to the real price of oil.

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